Syphilis
Table of Contents

Syphilis

Syphilis is a chronic infectious disease that is almost entirely transmitted by direct intimate contact with the infectious lesions of early syphilis, and also from an infected mother to her infant before or at the time of birth. It is systemic from the onset and capable of involving any structure of the body. If left untreated, it progresses through stages: primary, secondary, latent, and late syphilis (tertiary).

A. Etiologic Agent: *Treponema pallidum:* a spirochete

B. Mode of Transmission: Sexual contact (vaginal, oral, and anal sex) and also from an infected mother to her infant before or at the time of birth. Although it is technically possible to transmit syphilis through other intimate contact, it is extremely unlikely. For spread to occur, susceptible tissue must come into direct contact with infectious lesions in the primary and secondary stages.

> Sexual abuse must be suspected in any young child with acquired syphilis. (*2000 Red Book,* p.548*)*
>
> Infections that. . . . . can be asymptomatic for long periods after vertical transmission (e.g., syphilis. . . . . .) are more problematic [in terms of assessing the likelihood of sexual abuse]. The possibility of vertical transmission should be considered in these cases, but an evaluation of the patient's circumstances by the local child protective services agency is warranted in most. (*2000 Red Book,* p.143)

C. Clinical picture:

Syphilis is a systemic infection caused by *Treponema pallidum*.

Primary syphilis is characterized by one or more painless, superficial ulcerations (chancres) at the site of exposure. Such lesions may be seen at any site in the genital, anorectal, or oropharyngeal tracts; thus a high index of provider suspicion is required when any patient presents with a mucosal ulcer or "sore." The chancre often has raised, sharply demarcated borders, a red smooth base, and scanty serous secretion, although the clinical presentation is quite variable, Regional lymphadenopathy may also be present. Average time from infectious exposure to lesion development is three weeks (range 9-90 days). Resolution of lesions generally occurs three to six weeks thereafter without treatment.

Secondary syphilis may develop following resolution of primary lesions. Secondary disease is characterized by macular, maculopapular, or papular skin lesions ("rash"), typically involving palms, soles and flexor areas of the extremities. The trunk, back, shoulders, abdomen and face are also commonly involved. Pustular lesions and condylomata lata may infrequently occur. Average time from infectious exposure to onset of secondary symptoms is six weeks.

Latent syphilis is diagnosed serologically in the absence of primary or secondary clinical signs. Early disease (≤1 year) is differentiated from late disease (>1 year) for treatment purposes (see below). **If a negative serology within the past year cannot be documented or an epi-link cannot be identified, patients should be treated for late latent disease.**

Tertiary syphilis is rare, but may manifest as mucocutanous/osseous lesions (gummas), cardiovascular lesions (aortitis), or neurologic involvement (neurosyphilis). While neurosyphilis is generally a late complication of infection, syphilitic meningitis may occur as an early complication within the first few weeks of infection, or at any time thereafter.

D. Diagnosis:

1. Darkfield microscopy of lesion exudate: specific but insensitive

2. Non-treponemal serologic test: RPR (Rapid Plasma Reagin) **or** VDRL (Venereal Disease Research Laboratory)
   a. Often reactive within one to two weeks of chancre onset
   b. Up to 30% may have **negative** RPR at time of initial exam.
   c. False-positive in variety of conditions
   d. False-negative prozone effect in 1-2% of secondary syphilis; serum is reactive with serial dilutions
   e. RPR generally runs approximately 1 titer higher than VDRL; both tests are only accurate to within ± 1 dilution

3. Treponemal serologic test to confirm infection: FTA-ABS (fluorescent treponemal antibody absorption), MHA-TP (microhemagglutination assay for *T. pallidum*), **or** TP-PA (*Treponema pallidum*-Particle Agglutination)

4. Newer tests, such as direct fluorescent antibody (DFA) examination of lesion exudate, are not widely available

E. Differential Diagnosis: Early syphilis should be included or excluded in the management of patients with genital, anal or oral lesions; or skin or body rash. Other genital ulcer diseases include herpes, chancroid, and lymphogranuloma venereum.

F. Treatment: See CDC STD Treatment Guidelines in the appendix or online at: www.cdc.gov/std/treatment/default.htm

Jarisch-Herxheimer reaction

a. Systemic manifestations of treponeme lysis: release of treponemal constituents, presumably in an endotoxin-like reaction.
b. More common in early syphilis
c. Fever, malaise, headache, musculoskeletal pain, nausea, tachycardia may occur within four to eight hours of treatment, resolve within 24 hours
d. Not dependent on type or dose of antibiotic used, should not be mistaken for a penicillin reaction
e. Not an indication for discontinuation of treatment; most reactions can be managed by reassurance of patient and fluids, acetaminophen, ibuprofen as needed

NOTE: **For all stages of syphilis, penicillin is the treatment of choice.** If doxycycline or any other antibiotic is given, stress adherence to the regimen since deletion of only a few doses significantly increases the failure rate. For pregnant patients with history of true penicillin allergy, penicillin skin testing and desensitization are required, since alternative medications do not treat the fetus.

G. Follow Up of Reactive Serologic Tests for Syphilis (STS)

Because non-treponemal antibodies may persist in treated patients (known as Wasserman-fast or serofast patients), the reactive serology will be researched in the central registry of the disease intervention program. The registry consists of previously reported reactive syphilis lab reports and epidemiological investigation outcomes, including diagnosis or biologic false positive (BFP) information.

H. Sex partners

Refer all patients with syphilis to your regional Disease Intervention Specialist (see Section 1, Sexually Transmitted Disease Intervention Program) for immediate counseling and interview. All partners with potential exposure must be referred for clinical evaluation. Notify STD Intervention Program staff before examining and treating contacts to discuss contact history and appropriate management. In general, the following guidelines apply:

1. Partners of patients with early syphilis (≤1 yr. duration)
   a. Routine history, examination, and serologies (syphilis, HIV)
   b. Routine epidemiologic treatment for **all partners within the preceding 90 days**, regardless of serologic test result
   c. Treat partners >90 days if test results not immediately available or follow-up cannot be assured.

2. Partners of patients with late syphilis (>1 yr. duration)
   a. Routine history, examination, and serologies (syphilis, HIV)
   b. Obtain specific treponemal test (MHA-TP, TP-PA)

The time periods before treatment used for identifying at-risk sex partners are:
   a. Three months plus duration of symptoms for primary syphilis;
   b. Six months plus duration of symptoms for secondary syphilis; and
   c. One year for early latent syphilis.

I. Patient Education: STD education should be an integral part of early syphilis management. The patient should be provided information on the clinical stages of syphilis. The patient should be encouraged to assist the Disease Intervention Program staff in locating and informing all sexual contacts and others at high risk for this infection. Syphilis is a serious disease with potentially grave consequences if the infected person is not adequately treated. The patient will be provided information to help ensure adequate treatment and follow-up.

J. Other management issues

1. Follow-up after treatment
   a. Early syphilis
      i. Clinical examination and repeat serology at six and 12 months, or sooner if clinically indicated
         a. RPR should show a 4-fold titer decrease within six months of treatment
         b. Use same test at each visit to facilitate interpretations, since RPR titers are often slightly higher that VDRL
      ii. Consider treatment failure vs. reinfection if signs or symptoms persist or recur, or if non-treponemal titer increases 4-fold – lumbar puncture (LP) generally indicated before retreatment unless reinfection is certain
      iii. If HIV-negative (or if not tested), advise repeat HIV testing at three to six months
   b. Late syphilis
      i. Repeat serology in 6, 12, and 24 months
      ii. Evaluate for neurosyphilis if:
         a. non-treponemal titer increases 4-fold
         b. initially higher titer ($\geq$1:32) fails to fall 4-fold in 12-24 months
         c. signs or symptoms of syphilis development
   c. Neurosyphilis
      i. Repeat serology in 3, 6, 12, and 24 months
      ii. Follow-up lumbar puncture (LP) at six-month intervals until cell count is normal
      iii. Consider retreatment if cell count not decreased at six months or CSF not entirely normal at two years
   d. Syphilis (any stage) in HIV-positive patients

i. Clinical examination in one week
ii. Repeat serology in 3, 6, 9, 12, and 24 months, then yearly (even if RPR becomes negative)

2. Indications for lumbar puncture (LP) in latent syphilis
   a. Neurologic or ophthalmic signs/symptoms
   b. Evidence of tertiary disease (gumma, aortitis, iritis)
   c. Treatment failure
   d. HIV infection
      i. HIV+ early latent syphilis does not need routine LP unless clinically indicated
      ii. Close follow-up required, since up to 25% of HIV+ patients may develop neurosyphilis despite adequate therapy

NOTE: Common exceptions to LP include:
--asymptomatic elderly patients with late latent syphilis, RPR ≤ 1:4
--Patients with RPR ≤ 1:2 for whom the probable duration since primary infection is ≥ 30 years
--immigrants from geographic areas with high prevalence of pinta or yaws (e.g. the tropical Americas, Southeast Asia, Central Africa) who have no history of prior syphilis and RPR ≤ 1:4

3. Syphilis during pregnancy
   a. Recommend all women should be screened serologically in first trimester. For high risk women, additional testing should occur in the third trimester and at delivery

   Missouri statute 210.030 states that a pregnant woman in the state of Missouri shall, if the woman consents, be tested for syphilis at the time of the first prenatal examination, or not later than twenty days after the first prenatal examination. In any area of the state designated as a syphilis outbreak area by the Department of Health and Senior Services, if the mother consents, a sample of her venous blood shall be taken later in the course of pregnancy and at delivery for additional testing for syphilis.
   b. Treat with the penicillin regimen appropriate for the stage of disease
   c. Some experts give **one additional dose** of benzathine PCN IM one week after the initial dose for patients with early syphilis during pregnancy
   d. Advise patients treated in second half of pregnancy about Jarisch-Herxheimer reaction, which can precipitate premature labor, fetal distress
   e. True penicillin allergy in pregnant woman requires skin testing and desensitization, since alternative medications do not treat the fetus

Websites

DHSS Disease Directory: Syphilis
http://www.dhss.state.mo.us/GLRequest/ID/SyphilisE.html

CDC: Syphilis Fact Sheet
http://www.cdc.gov/stopsyphilis/SyphilisFact.htm

NIAID. Syphilis
http://www.niaid.nih.gov/factsheets/stdsyph.htm

National Network of STD/HIV Prevention Training Centers (PTCs).
Curriculum Outline: Clinical STD Training Courses: Syphilis
http://depts.washington.edu/nnptc/

Techniques Involving Laboratory Tests for Syphilis

Serological Tests

Non-treponemal Tests (RPR and VDRL): The non-treponemal tests, which utilize purified cardiolipin antigens, are recommended for screening purposes because of their high reliability and low cost. The titer should always be determined when the test is reactive and a second specimen obtained to verify the reaction. After treatment, the patient should be followed with the same quantitative test since different non-treponemal tests often have significantly different titers.

Treponemal Tests (MHA-TP, TP-PA and FTA-ABS): The treponemal tests utilize treponemal antigens to detect specific treponemal antibody. These are recommended diagnostic aids for patients with reactive non-treponemal tests. Treponemal tests are also recommended as diagnostic aids for patients with symptoms suggesting late syphilis regardless of non-treponemal test results, since the non-treponemal tests are less sensitive in such cases.

IMPORTANT

Due to multiple clinic experiences throughout the State of Missouri, one important characteristic of the MHA-TP in primary stage (lesion) syphilis needs to be reemphasized.

In very early syphilis - primary stage - the MHA-TP lacks the sensitivity, in some cases, to be reactive. Therefore, a negative result in the clinical primary stage **does not exclude** the presence of syphilis. If available, the clinician is advised to request a darkfield examination before beginning treatment.

Important Points in the Interpretation of the RPR

1. More than a reactive RPR is needed to justify the diagnosis of syphilis.
2. A reactive RPR in the absence of syphilis is called a Biologic False Positive (BFP) or "syphilis infection". A BFP must always be proven **not** to represent syphilis.
3. The RPR is not necessarily reactive in primary syphilis, and it usually does not become reactive until one to three weeks after the appearance of the chancre.
4. A patient with secondary syphilis could have a non-reactive undiluted RPR due to a prozone reaction. If a secondary syphilis case is suspected, a request for dilutions should be specifically made. In secondary syphilis, the TP-PA (MHA-TP) is always positive.

5. If the patient receives treatment past one year being infected, the RPR may remain reactive in low titer or in the high pre-treatment titer range for life. In such cases, a cure is not based on serologic reversal, and treatment need not be repeated unless there is other evidence of re-infection.

6. A fourfold (2 dilution) rise in the titer (e.g. 1:2 to 1:8) performed by the same laboratory is considered evidence of need for re-treatment. The only exception is the adequately treated congenital syphilitic whose titer may fluctuate without any particular significance.

7. When previous treatment cannot be verified, every pregnant woman with a reactive serologic test for syphilis should receive treatment before leaving the clinic. The usual medical and epidemiologic follow-up can be performed later to confirm the diagnosis.

8. A patient may have late symptomatic syphilis, either acquired or congenital, and have a non-reactive RPR. A negative non-treponemal test does not rule out syphilis.

9. A reactive VDRL-CSF test performed on a sample of spinal fluid always represents syphilis unless proved otherwise. Central nervous system involvement (except in cases of tabes dorsalis) is also indicated by elevations of spinal fluid white cell count and total protein.

10. All seroreactive infants (or an infant whose mother was seroreactive at delivery) should receive careful follow-up examinations and serologic testing (i.e., a non-treponemal test) every two to three months until the test becomes nonreactive or the titer has decreased fourfold. Non-treponemal antibody titers should decline by three months of age and should be nonreactive by six months of age if the infant was not infected (i.e., if the reactive test result was caused by passive transfer of maternal IgG antibody) or was infected but adequately treated. The serologic response after therapy may be slower for infants treated after the neonatal period. If these titers are stable or increasing after six to 12 months of age, the child should be evaluated, including a CSF examination, and treated with a 10-day course of parenteral penicillin G.

    Treponemal tests should not be used to evaluate treatment response because the results for an infected child can remain positive despite effective therapy. Passively transferred maternal treponemal antibodies could be present in an infant until age 15 months. A reactive treponemal test after age 18 months is diagnostic of congenital syphilis. If the non-treponemal test is nonreactive at this time, no further evaluation or treatment is necessary. If the non-treponemal test is reactive at age 18 months, the infant should be fully (re)evaluated and treated for congenital syphilis.

Serology Test Results

Non-treponemal **RPR or VDRL**	Treponemal **MHA-TP, TP-PA or FTA-ABS**	**INTERPRETATION**
Reactive	Reactive	Indicates a new syphilis infection, an infection never treated or a previous history of treatment. Additional testing should be done least 14 days after the initial test. To establish a new diagnosis in patients previously treated for syphilis, there must be a fourfold (2 dilution) increase in the quantitative non-treponemal titer (e.g., 1:2 to 1:8).
Reactive	Non-reactive	Repeat both tests at least 14 days after initial test to confirm the BFP and evaluate for the following potential causes. A "Biological False Positive" (BFP) reaction in non-treponemal tests may be caused by infections, immunizations, inflammatory disease, immunoglobulin abnormalities, drug addiction, pregnancy or aging. See a more complete list on page 13 of this section.
Non-reactive	Not Done	If recent exposure is suspected, then a repeat non-treponemal test is recommended. If symptomatic for secondary, request diluted RPR and a treponemal test. Treponemal tests are not otherwise indicated unless late syphilis is suspected on clinical grounds. A reactive MHA-TP, TP-PA test would add weight to the diagnosis of late syphilis.

Patients adequately treated for early syphilis will usually have a decrease in titer of non-treponemal tests (e.g., RPR). Failure of non-treponemal test titers to decline fourfold (i.e., two dilutions) within 6 months after therapy for primary or secondary syphilis or 12-24 months after therapy for latent syphilis cases with an initially high titer (>or = to 1:32) identifies persons at risk for treatment failure. Treponemal tests (e.g., TP-PA) will normally remain reactive after treatment.

Diseases and Conditions Associated with Benign False-Positive Non-Treponemal Tests for Syphilis

Soon after the onset of syphilis infection, there are at least two antibodies that are elaborated and appear in the blood. In an immunologic sense, these antibodies are specific and nonspecific, or treponemal and non-treponemal. Non-treponemal tests such as the VDRL and RPR detect an antibody called reagin. This antibody can be demonstrated in 25 percent of patients in the first week of the primary (chancre) stage. This sensitivity increases to almost 100 percent in the secondary stage.

While reagin non-treponemal tests are highly specific, they are not 100%. Reagin is elaborated in a small percentage of patients who do not have syphilis. This may be either a chronic biologic false positive (BFP), or a false positive result of short duration. In the patient with a reactive reagin test without signs or symptoms of syphilis, the physician must establish or rule out the presence of disease. His or her judgment will be made on the basis of clinical examination, patient history, epidemiologic data and the judicious use of treponemal tests (MHA-TP, TP-PA, FTA-ABS). It is recommended that the RPR or VDRL be repeated at least 14 days after the initial test was drawn.

The following is a listing of diseases and conditions associated with BFP non-treponemal tests for syphilis:

Advancing Age
Atypical Pneumonia
Brucellosis
Cerebral Vascular Accidents
Chancroid
Chickenpox
Chronic Blood Loss
Hashimoto's Thyroiditis
Hemolytic Anemia
Heroin Addiction
Idiopathic Thrombocytopenia Purpura
Infectious Hepatitis
Infectious Mononucleosis
Leprosy
Leptospirosis
Liver Disease
Lupus Erythematosus
Lymphogranuloma Venereum
Malaria
Malignancy (lymphosarcoma)
Measles
Mumps
Mycoplasmal Pneumonia
Pneumococcal Pneumonia
Pregnancy
Post-Myocardial Infarction
Rat-Bite Fever
Raynaud's Disease
Relapsing Fever
Rheumatic Fever
Rheumatoid Arthritis
Scleroderma
Sjogren's Syndrome
Subacute Bacterial Endocarditis
Thyroid Disease
Tuberculosis
Trypanosomiasis
Typhus
Ulcerative Colitis
Vaccinia

(Yaws, Pinta and Bejel will result in both positive non-treponemal and treponemal tests for syphilis.)

Darkfield Microscopy

A special darkfield microscope is required for this procedure.

Obtain material for examination:

Lesions: Clean the surface of the lesion of purulent matter, scab, or epithelium and gently abrade. From the lesion base, collect serous exudate after it is relatively clear of red blood cells. Use a clean cover glass or slide, or bacteriological loop or capillary tube to obtain the fluid. Caution: Mouth lesions (mucous patches or chancres) must be well cleansed and walled off completely to prevent contamination by normal oral spirochetes. Even then, the results must be interpreted with care, since these spirochetes may be indistinguishable from *T. pallidum*.

Lymph nodes: When direct examination of skin lesions is negative or if topical treponemicidal agents have been used, material aspirated from enlarged regional lymph nodes may be diagnostic. Prepare the skin overlying the node and insert a 20-gauge needle into the node. After ensuring the needle tip is within the node, inject a small amount (0.1 ml) of air and saline. Gently manipulate the needle tip to macerate the tissue and aspirate material to examine for spirochetes.

If you cannot obtain a darkfield examination from your medical laboratory, and a darkfield microscope and a trained person to interpret the slide are not available, draw an RPR or VDRL.

Cerebrospinal Fluid Examination

Initial cerebrospinal fluid examinations should include a cell count, determination of the protein concentration, and a VDRL test. The cell count must be done in less than two hours, whereas specimens for the protein and VDRL tests may be refrigerated for later testing.

SYPHILIS SEROLOGY TEST REQUEST

1. Please provide the patient information requested.
2. Type or print with pressure.
3. Send all copies of this form with specimen to **STATE PUBLIC HEALTH LABORATORY.**

PATIENT NAME (LAST, FIRST)

ADDRESS (CITY, STATE, ZIP CODE)

BIRTHDATE

SEX ☐ Female ☐ Male

RACE W | B | A/PI | AI/AN | O/U

MEDICAID NUMBER

The following information MUST BE PROVIDED before testing can be performed:

PERSON'S NAME AUTHORIZED TO RECEIVE PHONE RESULTS

FACILITY/LAB PHONE NO

FACILITY/LABORATORY NAME

FACILITY/LABORATORY STREET/MAILING ADDRESS

FACILITY/LABORATORY CITY, STATE & ZIP CODE

DATE SPECIMEN COLLECTED

PURPOSE FOR TEST

- ☐ Diagnostic
- ☐ Prenatal
- ☐ Recheck
- ☐ Family Planning
- ☐ Treated Case

SPECIMEN SOURCE

- ☐ Blood/Serum
- ☐ Spinal Fluid

SEE REVERSE SIDE FOR FURTHER INFORMATION

PREVIOUS LABORATORY RESULTS

STATE LAB

SERIAL NO

FOR STATE HEALTH LAB USE ONLY

DATE REPORTED

LABORATORY REPORT

TEST PERFORMED	N	R	DILUTIONS
RPR - 18 mm			
TP-PA			
CSF - VDRL			

MISSOURI DEPARTMENT OF HEALTH
STATE PUBLIC HEALTH LABORATORY
307 W McCARTY, PO BOX 570
JEFFERSON CITY MO 65101

EOAA EMPLOYER
Services Provided on a non-Discriminatory Basis

CONGENITAL SYPHILIS CASE INVESTIGATION WORKSHEET

ATTACH ANY FORMS RELEVANT TO THIS CASE (BLOOD HISTORIES, FRs, INTERVIEW RECORDS)

A. REPORTING INFORMATION

1. Date Assigned: _____
2. Worker Number: _____
3. Case ID Number: _____
4. Date first reported to local/state STD Program: _____
5. Initially reported by: ❑ Provider ❑ Lab
   Provider/Lab Name: _____
6. Reporting State (FIPS): _____
7. Reporting County (FIPS): _____
8. Reporting City (FIPS): _____

B. MATERNAL INFORMATION

9. Mother's Name: _____ (Last) (First) (M) 10. Date of Birth: _____ 11. Age: ___

Aka(s): _____

12. Race: ❑White ❑Black ❑Asian/Pacific Islander ❑American Indian/Alaskan Native ❑Other ❑Unknown
13. Ethnicity: ❑Hispanic ❑Non-Hispanic ❑Unknown
14. Marital Status: ❑Single, never married ❑Married ❑Separated/Divorced ❑Widow ❑Unknown
15. Address: _____ 16. City/State: _____
17. Zip: _____ 18. County: _____ 19. Tel No.: (_____) _____

20. PRIOR HISTORY: (Include all STS and treatment, in chronological order, that occurred prior to this pregnancy.)

Date	Non-Treponemal Test/Titer	Treponemal Test/Result	Provider	Dx	Rx† Code	Date Began	Dispo

CURRENT HISTORY: (Include all STS and treatment, in chronological order, that occurred during the pregnancy at delivery or shortly after delivery.)

21. Date of Last Menstrual Period (LMP): _____

22.

Date	PG* Stage	Non-Treponemal Test/Titer	Treponemal Test/Result	Provider	Dx	Rx† Code	Date Began	Dispo

*PREGNANCY STAGE (1 = 1st Trimester; 2 = 2nd Trimester, 3 = 3rd Trimester; 4 = at delivery; 5 = after delivery)

†Adult treatment codes found on page 5.

MATERNAL INFORMATION *(con't)*

23. Did mother have darkfield or direct fluorescent antibody (DFA) examination of lesions at delivery?
❑ Tested, Positive ❑ Tested, Negative ❑ No Test ❑ Unknown
24. In this pregnancy, were there any missed opportunities to intervene? ❑ Yes ❑ No
If yes, explain: _____
25. Prenatal Care: ❑ Yes ❑ No ❑ Unknown (If no, skip to field 33, if unknown, skip to field 34.)
26. Payor of prenatal care: ❑ Private Insurance, HMO ❑ Private Insurance, Non-HMO ❑ Medicaid Managed Care
❑ Medicaid Fee-for-Service ❑ Medicare ❑ Self-Pay ❑ No Coverage ❑ Other: _____
27. Date of first prenatal care visit: _____ 28. Provider: _____
29. Date of last prenatal care visit: _____ 30. Provider: _____
31. Were there multiple providers of prenatal care? ❑ Yes ❑ No
32. Total number of prenatal care visits: _____ (99 if unknown)
33. If no prenatal care, reason(s): _____
_____
34. Was mother interviewed? ❑ Yes ❑ No ❑ Unknown (If no or unknown, skip to field 38.)
35. Mother's preprinted STD Interview Record Number: _____ 36. Mother's FR Number: _____
37. Record diagnosis and explain basis for diagnosis and/or reason for interview: _____
38. Did mother self-report using drugs during this pregnancy? ❑ Yes ❑ No ❑ Refused to Answer ❑ Unknown
If yes, specify drugs used: _____
39. Did the mother have a toxicology screening during pregnancy and/or at delivery? ❑ Yes ❑ No ❑ Unknown
If yes, what were the results and for what specifications? _____
40. Number of previous pregnancies: _____ (If no previous pregnancies, skip to field 44.)
41. Number of: Live births _____ Abortions _____ Miscarriages _____ Stillbirths _____
42. Ages of other children: _____ _____ _____ _____ _____ _____ _____ _____
43. Names and dispositions of children examined as a result of mother's current infection:

Name	Age	Date Examined	Non-Treponemal Test/Titer	Treponemal Test/Result	Dx	Rx† Code	Dispo

† Treatment codes found on page 5.

C. INFANT/CHILD INFORMATION

44. Infant/Child's Full Name: _____ 45. Date of Birth/Delivery: _____
(Last) (First) (M)
46. Gender: ❑Male ❑Female ❑Unknown
47. Race: ❑White ❑Black ❑Asian/Pacific Islander ❑American Indian/Alaskan Native ❑Other ❑Unknown
48. Ethnicity: ❑Hispanic ❑Non-Hispanic ❑Unknown
49. Birth weight in grams: _____
50. Estimated gestational age (in weeks): _____ (40=Full term; 99 if unknown)
51. Infant's vital status: ❑ 1 = Alive ❑ 2 = Born alive, then died –– Date of Death: _____
❑ 3 = Stillborn ❑ 9 = Unknown (explain in "Additional Comments" on page 6)
If 2 or 3 is checked above, explain (attach all appropriate documentation, if available, e.g., death certificate, medical records: _____
52. Name of guardian, if not mother, and relationship to infant/child: _____
53. Guardian's address (if different from mother's): _____
54. City/State: _____ 55. County: _____ 56. Tel No.: (____) _____
57. Delivery Hospital: _____ 58. City/State: _____
59. Tel No.: (_____) _____ 60. Birth Certificate No.: _____
61. Delivery physician: _____ 62. Tel No.: (____) _____

INFANT/CHILD INFORMATION *(con't)*

63. Infant/child's pediatrician: _____ 64. Tel No.: (____) _____
65. Mother's Medical Record No.: _____ 66. Infant's Medical Record No.: _____
67. Date of Initial examination: _____
68. Infant's STS history in chronological order:

Date	Non-Treponemal Test/Titer	Treponemal Test/Result	Comments (include source of specimen and dates reported)

69. Signs of Congenital Syphilis: ❑ Yes ❑ No ❑ Unknown (If no or unknown, skip to field 70.)
Infant/child <2 years of age (check those signs of congenital syphilis that were identified)
❑ Condyloma lata ❑ Snuffles ❑ Jaundice (nonviral hepatitis)
❑ Pseudoparalysis ❑ Rash ❑ Edema (neprotic syndrome and/or malnutrition)
❑ Hepatosplenomegaly
❑ Unknown (explain): _____

Child ≥ 2 years of age (check those signs of congenital syphilis that were identified)
❑ Interstitial Keratitis ❑ Hutchinson teeth ❑ Nerve deafness
❑ Anterior bowling of shins ❑ Saddle nose ❑ Frontal bossing
❑ Clutton joints ❑ Mulberry molars ❑ Rhagadeo
❑ Unknown (explain): _____

70. Other findings? ❑ Yes ❑ No ❑ Unknown
❑ Fever ❑ Neurological (explain): _____
❑ Failure to Thrive ❑ Other (explain): _____
❑ Anemia

Infant's Evaluation	Date	Result
71. Long Bone X-Rays		
72. CSF-VDRL		
73. CSF Cell Count		
74. CSF Protein		

	Date	Result
75. Darkfield exam of lesions		
76. Direct Fluorescent Antibody		
77. IGM-Specific Treponemal Test		
78. Other tests (specify) _____		

79. Did the child have toxicology screening at delivery? ❑ Yes ❑ No ❑ Unknown
If yes, what were the results and for what specific drugs? _____

INFANT/CHILD INFORMATION *(con't)*

80. Infant's Treatment (check the treatment regimen used)

	---Dates of Treatment*--- From	To
❑ Aqueous Crystalline Penicillin G 50,000 units/kg IV every 8-12 hours x 10-14 days		
❑ Procaine Penicillin 50,000 units/kg IM x 10-14 days		
❑ Combination of Above		
❑ Combination of Ampicillin and Aqueous/Procaine Penicillin x 10-14 days		
❑ Benzathine Penicillin G 50,000 units/kg IM x 1 dose		
❑ Other (specify) _____		

❑ No/unknown treatment (explain)_____

*Explain incomplete or changes in treatment under "Additional Comments".

D. FATHER'S INFORMATION

81. Name: _____ (Last) (First) (M) 82. Date of Birth: _____ 83. Age: _____

Aka(s): _____

84. Race: ❑White ❑Black ❑Asian/Pacific Islander ❑American Indian/Alaskan Native ❑Other ❑Unknown
85. Ethnicity: ❑Hispanic ❑Non-Hispanic ❑Unknown
86. Address: _____ 87. City/State: _____
(If different from mother of infant)
88. ZIP: _____ 89. County: _____ 90. Tel No.: (____) _____
91. Date of first examination: _____ 92. Provider: _____
93. STS history in chronological order (including most recent test):

Date	Non-Treponemal Test/Titer	Treponemal Test/Result	Dx	Rx† Code	Date Began	Dispo

If unknown, other, unverified, or no treatment, explain: _____

94. Was father interviewed? ❑ Yes ❑ No ❑ Unknown (If no or unknown, skip to field 97.)
95. Father's preprinted STD Interview Record Number: _____ 96. Father's FR Number: _____
97. Explain basis for diagnosis and/or reason for no interview: _____
98. Was the father ever previously named as a contact or reported as a reactor? ❑ Yes ❑ No
If so, when (month/year) ____/____

† Treatment codes found on page 5.

E. LOCAL/DISTRICT CLOSURE INFORMATION

99. Date investigation closed by local health department or district health office: _____
100. Closure approved by (FLS/MGR # or initials): _____

F. CASE CLASSIFICATION (To Be Completed By MDOH Central Office Staff Only)

101. Classification
- ❑ 1 = Not a case
- ❑ 2 = Confirmed case (laboratory confirmed identification of *T. pallidum*, e.g. darkfield or direct fluorescent antibody positive lesions)
- ❑ 3 = Syphilitic stillbirth –– Confirmed? ❑ Yes ❑ No
- ❑ 4 = Probable cases (a case identified by the CS algorithm, which is not a confirmed case or syphilitic stillbirth)

102. Date case report form forwarded to CDC: _____
103. Date copy forwarded to local health department or district CIS: _____

ADULT TREATMENT CODES

1a = BIC 2.4 x 1	2 = Erythro 500 mg QID x 2 weeks	5 = Other (specify) _____
1b = BIC 2.4 x 2	3 = Tetra 500 mg QID x 2 weeks	6 = No Treatment
1c = BIC 2.4 x 3	4 = Doxy 100 mg BID x 2 weeks	7 = Unverified/Unknown

Enter treatment codes only for those treatment courses without any break in the regimen specified.

G. ADDITIONAL COMMENTS

LOCAL USE ONLY

Mother's Name: _____ Chart No.: _____

Address: _____ (Number, Street, City, State) _____ (Zip Code) Phone No.: ( ) _____

Infant's Name: _____ Chart No.: _____ Delivering Physician: _____ Phone No.: ( ) _____

Pediatrician: _____ Phone No.: ( ) _____ – Patient identifier information is **not** transmitted to CDC –

DEPARTMENT OF HEALTH & HUMAN SERVICES
CENTERS FOR DISEASE CONTROL and PREVENTION
ATLANTA, GA 30333

CONGENITAL SYPHILIS (CS) CASE INVESTIGATION AND REPORT

Form Approved OMB No. 0920-0128

CASE ID No.: (1-7) 111218

Local Use ID No.: _____

PART I. REPORTING INFORMATION

1. Report date to health dept. ☐ Unk — __ __ / __ __ / __ __ __ __ (Mo. / Day / Yr.) (8-15)

2. Reporting state FIPS code: ☐ Unk — __ __ (16-17) _____ Reporting State Name

3. Reporting county FIPS code: ☐ Unk — __ __ __ (18-20) _____ Reporting County Name

4. Reporting city FIPS code: ☐ Unk — __ __ __ __ (21-24) _____ Reporting City Name

5. Other geographic unit (optional): __ __ __ __ (25-27)

6. Sentinel reporting site: (28) 1 ☐ Yes 2 ☐ No

PART II. MATERNAL INFORMATION

7. State FIPS code: __ __ (29-30) _____ Residence State Name ☐ Unk

8. Residence county FIPS code: ☐ Unk — __ __ __ (31-33) _____ Residence County Name

9. Residence city FIPS code: ☐ Unk — __ __ __ __ (34-37) _____ Residence City Name

10. Residence zip code: ☐ Unk — __ __ __ __ __ (38-42)

11. Mother's date of birth: ☐ Unk — __ __ / __ __ / __ __ __ __ (Mo. / Day / Yr.) (43-50)

12. Mother's race: (51) 1 ☐ White 2 ☐ Black 3 ☐ American Indian/ Alaskan Native 4 ☐ Asian/Pacific Islander 8 ☐ Other 9 ☐ Unk

13. Mother's ethnicity: (52) 1 ☐ Hispanic 2 ☐ Non-Hispanic 9 ☐ Unk

14. Mother's marital status: (53) 1 ☐ Single, never married 2 ☐ Married 3 ☐ Separated/ Divorced 4 ☐ Widow 8 ☐ Other 9 ☐ Unk

15. Last menstrual period (LMP) (before delivery) ☐ Unk — __ __ / __ __ / __ __ __ __ (Mo. / Day / Yr.) (54-61)

16. Did mother have prenatal care? (62) 1 ☐ Yes 2 ☐ No *(Go to Q19)* 9 ☐ Unk *(Go to Q19)*

17. Indicate date of first prenatal visit: ☐ Unk — __ __ / __ __ / __ __ __ __ (Mo. / Day / Yr.) (63-70)

18. Indicate number of prenatal visits: ☐ Unk — __ __ (71-72)

19. Did mother have a nontreponemal test (e.g., RPR or VDRL) in pregnancy, at delivery, or soon after delivery? (73) 1 ☐ Yes 2 ☐ No *(Go to Q21)* 9 ☐ Unk *(Go to Q21)*

20. Indicate dates and results of nontreponemal tests:

	Date (Mo. / Day / Yr.)	Results	Titer
a.	__ __ / __ __ / __ __ __ __ (74-81) ☐ Unk	1 ☐ Reactive 2 ☐ Nonreactive 9 ☐ Unk (82)	1: __ __ __ __ (83-86)
b.	__ __ / __ __ / __ __ __ __ (87-94) ☐ Unk	1 ☐ Reactive 2 ☐ Nonreactive 9 ☐ Unk (95)	1: __ __ __ __ (96-99)
c.	__ __ / __ __ / __ __ __ __ (100-107) ☐ Unk	1 ☐ Reactive 2 ☐ Nonreactive 9 ☐ Unk (108)	1: __ __ __ __ (109-112)
d.	__ __ / __ __ / __ __ __ __ (113-120) ☐ Unk	1 ☐ Reactive 2 ☐ Nonreactive 9 ☐ Unk (121)	1: __ __ __ __ (122-125)

21. Did mother have confirmatory treponemal test result (e.g., FTA-ABS or TP-PA)? (126) 1 ☐ Yes, reactive 2 ☐ Yes, nonreactive 3 ☐ No test 9 ☐ Unk (Footnote a)

22. Did mother have darkfield or direct fluorescent antibody (DFA) exam of lesions at delivery? (127) 1 ☐ Yes, positive 2 ☐ Yes, negative 3 ☐ No test 9 ☐ Unk (Footnote a)

23. When was mother last treated for syphilis? (128) 1 ☐ Before pregnancy *(Go to Q24)* 2 ☐ During pregnancy *(Go to Q25)* 3 ☐ No Treatment *(Go to Q27)* 9 ☐ Unk *(Go to Q27)* — __ __ / __ __ / __ __ __ __ (Mo. / Day / Yr.) (129-136)

24. Before pregnancy, was mother's treatment adequate? (137) (Footnote b) 1 ☐ Yes, adequate *(Go to Q26)* 2 ☐ No, inadequate *(Go to Q27)* 9 ☐ Unk *(Go to Q27)*

25. During pregnancy, was mother's treatment adequate? (138) (Footnote b) 1 ☐ Yes, adequate 2 ☐ No, inadequate: non-penicillin therapy *(Go to Q27)* 3 ☐ No, inadequate: penicillin therapy begun < 30 days before delivery *(Go to Q27)* 4 ☐ Unknown *(Go to Q27)*

26. An appropriate serologic response? (139) (Footnote c) 1 ☐ Yes, appropriate response with adequate serologic follow-up during pregnancy 2 ☐ Yes, appropriate response but no follow-up serologic titers during pregnancy 3 ☐ No, inappropriate response: evidence of treatment failure or reinfection 4 ☐ No, response was equivocal or could not be determined from available nontreponemal titer information

PART III. INFANT INFORMATION

27. Date of Delivery: ☐ Unk — __ __ / __ __ / __ __ __ __ (Mo. / Day / Yr.) (140-147)

28. Vital status: (148) 1 ☐ Alive *(Go to Q30)* 2 ☐ Born alive, then died 3 ☐ Stillborn *(Go to Q31)* (Footnote d) 9 ☐ Unk *(Go to Q30)*

29. Indicate date of death ☐ Unk — __ __ / __ __ / __ __ __ __ (Mo. / Day / Yr.) (149-156)

30. Gender: (157) 1 ☐ Male 2 ☐ Female 9 ☐ Unk

31. Birthweight (in grams) ☐ Unk — __ __ __ __ (158-161)

32. Estimated gestational age (in weeks) ☐ Unk — __ __ (162-163) *(If infant was stillborn go to Q43)*

33. Did infant/child have a reactive serologic test for syphilis (e.g., RPR, VDRL, FTA-ABS or TP-PA) ? (164) 1 ☐ Yes 2 ☐ No *(Go to Q36)* 9 ☐ Unk *(Go to Q36)*

34. When was the infant/child's first reactive serologic test for syphilis? ☐ Unk — __ __ / __ __ / __ __ __ __ (Mo. / Day / Yr.) (165-172)

35. Indicate titer of infant/child's first reactive serologic test for syphilis: ☐ Unk — 1: __ __ __ __ (173-176)

36. Did the infant/child have any classic signs of CS? (177) (Footnote e) 1 ☐ Yes 2 ☐ No, asymptomatic infant/child 9 ☐ Unk.

Laboratory Confirmation

37. Did the infant/child have a darkfield exam or DFA-TP? (178) 1 ☐ Yes, positive 2 ☐ Yes, negative 3 ☐ No test 9 ☐ Unk.

38. Did the infant/child have an IGM-specific treponemal test? (179) (Footnote f) 1 ☐ Yes, reactive 2 ☐ Yes, nonreactive 3 ☐ No test 9 ☐ Unk.

Infant/Child Evaluation

39. Did the infant/child have long bone X-rays? (180) 1 ☐ Yes, changes consistent with CS 2 ☐ Yes, no signs of CS 3 ☐ No xrays 9 ☐ Unk.

40. Did the infant/child have a CSF-VDRL? (181) 1 ☐ Yes, reactive 2 ☐ Yes, nonreactive 3 ☐ No test 9 ☐ Unk.

41. Did the infant/child have a CSF cell count or CSF protein test? (182) (Footnote g) 1 ☐ Yes, one or both elevated 2 ☐ Yes, both not elevated 3 ☐ No test 9 ☐ Unk.

42. Was the infant/child treated? (183) 1 ☐ Yes, with Aqueous or Procaine Penicillin for ≥ 10 days 2 ☐ Yes, with Ampicillin followed by Aqueous or Procaine Penicillin for a total ≥ 10 days 3 ☐ Yes, with Benzathine penicillin x 1 4 ☐ Yes, with other treatment 5 ☐ No treatment 9 ☐ Unk.

PART IV. Congenital Syphilis Case Classification

43 Classification (184)

1 ☐ Not a case 2 ☐ Confirmed case (Laboratory confirmed identification of *T.pallidum*, e.g., darkfield or direct fluorescent antibody positive lesions) 3 ☐ Syphilitic stillbirth (Footnote d) 4 ☐ Presumptive case (A case identified by the above algorithm, which is not a confirmed case or syphilitic stillbirth).

Missouri Department of Health and Senior Services
P.O. Box 570, Jefferson City, MO 65102-0570 Phone: 573-751-6400 FAX: 573-751-6010

Richard C. Dunn
Director

Bob Holden
Governor

Syphilis Reactor Investigation Questions

Date Reactor Reported:_____ Reporting Agency:_____ Received by:_____
Patient Name: _____ DOB: _____Sex: _____ Race: _____
Address: _____
Home Phone: (____) _____ Work Phone: (____) _____ Cell/Beeper: (____) _____
Additional or emergency locating info: _____
_____
Attending Physician: _____ Phone: (____) _____
Laboratory: _____ Phone: (____) _____

Why did patient present for examination? _____
Describe any symptoms; with dates and durations, the patient was experiencing at time of exam or prior to the exam that the patient reported to the doctor._____
_____
Is the patient pregnant? ☐ Yes ☐ No If yes, how many months gestation? _____
Has the patient been pregnant during the last 12 months? ☐ Yes ☐ No
If yes, where and when did patient deliver infant? _____

List all current serologic tests for syphilis, including confirmatory:
Date: _____ Type of Test: _____ Result: _____
Date: _____ Type of Test: _____ Result: _____
Date: _____ Type of Test: _____ Result: _____
List all known previous serologic test for syphilis, including confirmatory:
Date: _____ Type of Test: _____ Result: _____
Date: _____ Type of Test: _____ Result: _____
Date: _____ Type of Test: _____ Result: _____

Current treatment for syphilis:
Date: _____ Type: _____ Quantity: _____ Provider: _____
Previous treatment for syphilis:
Date: _____ Type: _____ Quantity: _____ Provider: _____
Confirmed by doctor? ☐ Yes ☐ No
Previous antibiotic treatment in last 12 months:
Date: _____ Type: _____ Quantity: _____ Provider: _____
Does patient have any other medical condition that could produce a false positive?
Does patient have a history of any other STD? ☐ Yes ☐ No If yes,
Date: _____ Type: _____ Date: _____
Does provider have any knowledge of patient's sexual or needle sharing partners? ☐ Yes ☐ No
If yes, (use back of sheet if more room is needed) Name of partner(s) _____
Type of partner:_____Locating Info: _____

What is the doctor's diagnosis and/or plans for patient and follow up? _____
_____
Follow-up appointment scheduled? ☐ Yes ☐ No If yes, Date: _____
Doctor is informed of Health Department follow up? ☐ Yes ☐ No

Local Dispositions Dispo Date _____

☐ Record Search ☐ Age/Titer ☐ Other ☐ FR Initiated

☐ OOJ Called to:_____ Called by:_____ Date: _____

Algorithm for Classifying Syphilis

Current Date: _____

Patient's Name: _____ DOB: _____ Date of initial exam: _____
Clinic, HMO, or PMD: _____ Reason for exam:_____
Were symptoms of syphilis present on the date of initial exam? Yes __ No __
If yes, describe: _____ Onset date: _____
Did patient give a history of ulcers, chancres, or mucocutaneous lesions during the previous 12 months? Yes __ No __
If yes, describe: _____ Onset date: _____
Serological tests for syphilis:
Current: Date: _____ RPR or VDRL _____ MHA, FTA, or TP-PA ____
Last (prior to current): Date: _____ RPR or VDRL _____ MHA, FTA, or TP-PA ____
Previous (prior to last):
Date: _____ RPR or VDRL _____ MHA, FTA, or TP-PA ____ Reason for Previous Serology: _____
Date: _____ RPR or VDRL _____ MHA, FTA, or TP-PA ____
Does pt. have a history of previous syphilis therapy? Yes __ No __
If yes, where: _____ When: _____ Type and amt. of medication: _____
Is patient a known contact to 710? Yes __ No __ To 720? Yes __ No __ To 730? Yes __ No __
If contact to 730, was partner's diagnosis independently confirmed? Yes __ No __

Primary Syphilis:
Clinical description
A stage of infection caused by *T. pallidum* characterized by one or more chancres (ulcers); chancres might differ considerably in clinical appearance.
Algorithm for Determining Primary Syphilis

1. Does patient have clinically compatible case with one or more ulcers (chancres) consistent with primary syphilis?	Yes _ (Go to #2) No _ **STOP** (Not primary syphilis. Consider secondary syphilis)
2. Was *T. pallidum* demonstrated by darkfield, DFA, or equivalent method?	Yes _ **STOP**. Report as primary syphilis (710) No _ (Go to #3)
3. Does patient have at least one reactive serological test for syphilis? (Nontreponemal: VDRL, RPR **or** treponemal: (FTA-ABS or MHA-TP)	Yes _ **STOP**. Report as primary syphilis (710) No _ **STOP**. (Consider presumptive primary. Treat for primary. Repeat blood three weeks after initial blood for confirmation. Follow partners. If treponemal test is negative and partners negative. STOP. Not a case.)

Secondary Syphilis
Clinical description
A stage of infection caused by *T. pallidum* and characterized by secondary symptoms, often with generalized lymphadenopathy.
Algorithm for Determining Secondary Syphilis

1. Does patient have secondary symptoms clinically compatible with secondary syphilis?	Yes _ (Go to #2) No _ **STOP** (Not secondary syphilis
2. Was *T. pallidum* demonstrated by darkfield, DFA, or equivalent method?	Yes _ **STOP**. Report as secondary syphilis (720). No _ (Go to #3)
3. Is nontreponemal titer ≥ 1:4 w/ a positive confirmatory test?	Yes _ **STOP**. Report as secondary syphilis (720). No _ **STOP**. (Not secondary syphilis. Consider primary disease if symptom is multiple lesions.)

*Consider differences when comparing RPRs to VDRLs.

Latent Syphilis:
Clinical description
A stage of infection caused by *T. pallidum* in which organisms persist in the body of the infected person without causing symptoms or signs. Latent syphilis is subdivided into early, late, and unknown categories based on the duration of infection.
Algorithm for Classifying Latent Syphilis

1. Does patient have a reactive treponemal (FTA-ABS or MHA-TP, TP-PA) test for syphilis?	Yes _ (Go to # 2) No _ **STOP**. Not latent syphilis.
2. Does patient have a history of syphilis therapy?	Yes _ (Go to #3) No _ (Go to #4)
3. Does the current nontreponemal titer demonstrate a fourfold (2 dil) increase from the last nontreponemal titer ?*	Yes _ (Go to #4) No _ **STOP**. Not a new case of latent syphilis.
4. Did patient have a documented negative test during the last 12 months?	Yes _ **STOP**. Report as early latent syphilis (730) No _ (Go to #5)
5. During the past 12 months, has the patient's nontreponemal titer increased fourfold (2 dils) or greater?*	Yes _ **STOP**. Report as early latent syphilis (730) No _ (Go to #6)
6. Does the patient have a history of symptoms consistent with primary or secondary syphilis during the previous 12 months?	Yes _ **STOP**. Report as early latent syphilis (730) No _ (Go to #7)
7. Does patient have a history of exposure to a partner with confirmed or probable primary or secondary or probable early latent syphilis (independently confirmed as < 12 months duration)?	Yes _ **STOP**. Report as early latent syphilis (730) No _ (Go to #8)
8. Did the patient's only possible exposure to syphilis occur within the previous 12 months?	Yes _ **STOP**. Report as early latent syphilis (730) No _ (Go to #9)
9. Is patient between 13 and 35 years old?	Yes _ (Go to #10) No _ **STOP**. Report as late latent syphilis (745)
10. Is titer ≥ 1:32?	Yes _ **STOP**. Report as syphilis of unk. duration (740). No _ **STOP**. Report as late latent syphilis (745)

**If unusual circumstances present concerns, discuss with first-line supervisor. Change in diagnosis that differs from the above algorithm must be approved by your Program Manager and State Syphilis Elimination Coordinator.

(Revised 09/10/02)
Missouri Department of Health and Senior Services